



US006708635B1

(12) **United States Patent**
Nedderman, Jr.

(10) **Patent No.:** **US 6,708,635 B1**
(45) **Date of Patent:** **Mar. 23, 2004**

(54) **SHELL JOINT WITH AN ADJUSTABLE GAS EJECTION SLOT**

(75) **Inventor:** **William H. Nedderman, Jr.,**
Middletown, RI (US)

(73) **Assignee:** **The United States of America as**
represented by the Secretary of the
Navy, Washington, DC (US)

(* **Notice:** **Subject to any disclaimer, the term of this**
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **10/267,883**

(22) **Filed:** **Oct. 8, 2002**

(51) **Int. Cl.⁷** **B63B 1/34**

(52) **U.S. Cl.** **114/67 A**

(58) **Field of Search** **114/67 A, 67 R**

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,987,844 A * 1/1991 Nadolink 114/20.1
5,603,278 A * 2/1997 Nedderman et al. 114/67 R

* cited by examiner

Primary Examiner—Jesus D. Sotelo

(74) **Attorney, Agent, or Firm**—James M. Kasischke;
Michael F. Oglo; Jean-Paul A. Nasser

(57) **ABSTRACT**

A water tight shell joint for a super cavitating underwater vehicle is described. The shell joint includes a female member defining a first part of at least one slot for ejecting gas, a male member defining a second part of the at least one gas ejection slot, and at least one shim for adjusting the width of the at least one slot to obtain a volume of ejected gas sufficient to obtain a uniform cavity about the vehicle.

13 Claims, 2 Drawing Sheets

